

EXHIBIT 127

Water Rights Change Application No. 80700

Response of Applicant National Fish & Wildlife Foundation to:

WRID Exhibit 194: Report of Lee G. Bergfield entitled “Consumptive Use of Applied Water of Alfalfa in Mason Valley” dated February 14, 2013

WRID Exhibit 196: Report of Marc Van Camp entitled “Summary of Pertinent Water Rights and Conflict with Water Rights Resulting from the Proposed Changes Under NFWF Application 89799 dated February 14, 2013.

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A. Executive Summary

This report responds to Exhibits 194 and 196, reports prepared by MBK Engineers on behalf of and submitted by the Walker River Irrigation District (WRID). In Application No. 80700 (App. 80700), the National Fish and Wildlife Foundation (NFWF or Applicant) requests to transfer decreed water rights to instream use in the Walker River, and to retire supplemental groundwater rights, both of which are currently permitted for use on land served by the West Hyland ditch in Mason Valley. The rights sought for transfer in App. 80700 total 7.745 cubic feet per second (cfs) of Walker River Decree (C-125) surface water rights appurtenant to 646.16 acres of land with priority dates ranging from 1874 to 1906.

App. 80700 states that NFWF intends to “change the place, manner, and purpose of use of the subject water rights so that they can be administered and protected in stream to benefit the lower Walker River and Walker Lake.” In the application, NFWF also states “Applicant will withdraw 646.16 acres of associated supplemental ground water rights in the existing place of use as a condition of exercise following approval by the Nevada State Engineer and the U.S. District Court.” In part 16 of App. 80700, NFWF also expressly “acknowledges that the amount approved for change . . . will not conflict with existing rights as required by law.”

WRID Exhibits 194 and 196, taken together attempt to address two questions:

1. What is the actual consumptive use of applied water (CUAW) of alfalfa in Mason Valley¹?
2. How can 80700 be permitted so as to avoid conflict with other water rights?

In rebutting WRID Exhibits 194 and 196, this report shows that MBK’s analysis of App. 80700 “puts the cart before the horse,” effectively making the *a priori* assumption that the only way to avoid conflict is to limit the transfer to the actual CUAW at the existing point of diversion. This approach does not allow NFWF to use the full amount of acquired rights in accordance with basic principles of hydrology and the protection of instream flows *and* ignores the effect on the hydrologic system of the parallel retirement of supplemental groundwater rights appurtenant to 646.16 acres of land.

This report examines the transfer of surface water rights and retirement of groundwater rights, starting with the full decreed amount at the existing point of diversion, and proceeds downstream, demonstrating that the limits described in NFWF Exhibit 116 (Decision Support Tool Analysis and Report re App. 80700 Transfer) will avoid conflict with existing rights. This report is based on the fundamental principles of prior appropriation doctrine and the results of detailed ground and surface water modeling of the Walker River System that make up the

¹ Note that Exhibit 194 acknowledges that MBK’s CUAW is simply another way of stating the net irrigation water requirement (NIWR), the term used by the Nevada Department of Water Resources in its compilation of such figures for the entire state found in Huntington and Allen (2010). The two terms will be used interchangeably in this report, but CUAW will be used to reference MBK figures and NIWR to reference NDWR figures.

Walker River Decision Support Tool (“DST”), as presented in NFWF’s Exhibits 115–120 and 124. Finally, this report will show that the amount of surface water and the points at which it may be protected as instream flow is significantly different from that argued by WRID Exhibits 194 and 196.

This rebuttal report finds that conflict with other existing water rights will be avoided under App. 80700 as filed with the State Engineer, and the transfer proposed by App. 80700 may be approved as follows:

1. The full decreed amount of 7.745 can be permitted in the Walker River at the proposed point of non-diversion at the Yerington Weir (which is the same as the existing point of diversion), and at the existing priority dates, to the point of return flow near the Wabuska gage; and
2. A reduced amount of 6.583 cfs, applied proportionately across the decreed amounts by priority date, can be accounted for in the Walker River at the mouth of the Wabuska Drain and can be administered just downstream at the Wabuska gage. This adjustment reflects a reduction of 15% of the entire 7.745 cfs sought for transfer in order to avoid conflict with other existing rights in the Walker River system.

Alternatively, and for purposes of illustration, if the associated supplemental groundwater rights are not retired, this report finds that conflict with other existing water rights will be avoided under App. 80700, and the transfer proposed by App. 80700 may be approved similarly with respect to the full decreed amount of 7.745 at the proposed point of non-diversion, but with the following changes to the permitted amount for administration at the Wabuska gage:

1. A reduced amount of 5.498 cfs, applied proportionately across the decreed amounts by priority date, can be accounted for in the Walker River at the mouth of the Wabuska Drain and can be administered just downstream at the Wabuska gage. This adjustment reflects a reduction of 29% of the entire 7.745 cfs sought for transfer in order to avoid conflict with other existing rights in the Walker River system, and brings to the fore the benefit achieved to the system through the proposed retirement of the supplemental groundwater rights.

Finally, in response to Protestant WRID’s analyzed transfer conditions as discussed in Exhibits 194 and 196, should the State Engineer find that a ruling on App. 80700 should be made at a consumptive use amount, then the transfer proposed by App. 80700 should be approved similarly with respect to the full decreed flow rate of 7.745 cfs at the proposed point of non-diversion, but with the following changes to the permitted amount administered at the Wabuska gage:

1. A reduced amount of 4.112 cfs, applied proportionately across the decreed amounts by priority date, can be accounted for in the Walker River at the mouth of the Wabuska Drain and can be administered just downstream at the Wabuska gage. This adjustment reflects a consumptive use portion of the App. 80700 water rights of 3.10 acre feet per acre in order to avoid conflict with other existing rights in the Walker River system.

As the DST extends only to the Wabuska Gage, this report does not analyze the conveyance of instream, permitted water from the Wabuska Gage through and across the Walker River Paiute Reservation, and eventually to Walker Lake.

In sum, App. 80700 proposes the transfer of surface water rights *and* the retirement of associated supplemental groundwater rights. The Mason Valley agro-hydrogeologic system consists of a large number of human interventions that affect a complex surface and groundwater system. The impacts of such a transfer and retirement cannot be easily conceptualized and reduced to one concept – that of CUAW – as argued by the MBK Reports. The DST developed by UNR/DRI is an attempt to model these complex interactions and therefore represents an improved approach to determining the amount of water that can be delivered to the point of non-diversion and accounted for downstream at the Wabuska Gage without conflict to other existing rights.

The MBK Reports are critiqued below in reverse order as the primary issue is the assessment of conflict, if any, with other existing rights. As will be argued here, the CUAW provided by Exhibit 194 is not essential to the treatment of App. 80700, and is in fact the least accurate method of assessing whether there will be conflict with existing rights, given the availability of the DST.

B. Critique of the Analysis of App. 80700 in WRID Exhibit 196.

Exhibit 196 provides the following:

- Background on the Walker River Basin;
- A description of water rights in the basin, including those included in the App. 80700 transfer (the “80700 Rights”);
- Reporting on the historic natural flow available for irrigation;
- An analysis of App. 80700 and potential sources of conflict with existing rights; and
- Proposed administration of App. 80700 rights once a permit is issued.

Exhibit 196 concludes that in order to avoid conflict, only the “actual” CUAW associated with the 80700 water rights should be permitted for administration at the original point of diversion, and that the Walker River Federal Watermaster should only administer water under the permits for a given water right when that right’s priority date is fully met on the system.

Regarding MBK’s analysis of prospective sources of conflict with respect to App. 80700, Exhibit 196 suffers from the following errors, assumptions and omissions:

1. Exhibit 196 states that App. 80700 proposes to protect the full amount of the App. 80700 rights to Walker Lake. This is not the case. The transfer, as stated in App. 80700, is for the full decreed flow amount to be administered at the point of non-diversion. The question of how much App. 80700 water is to be administered instream as the water makes its way from the point of non-diversion to Walker Lake is addressed in Item 15 of App. 80700 (conveyance agreement among NFWF, WRPT and BIA), but in no event does NFWF request that its instream water rights be protected at the full decreed flow rate from the point of non-diversion to the terminus of the Walker River into Walker Lake.

2. Exhibit 196 argues that App. 80700 should be approved at the point of non-diversion only for the amount of the consumptive use under the water right. Exhibit 196 is effectively arguing that the starting point for addressing the question of conflict for an instream transfer such as App. 80700 is always to allow for only the transfer of the consumptive use component of the water right at the original point of diversion. However, the starting point for the evaluation of the potential for conflict resulting from a transfer – and in particular an instream transfer – is more properly the potential for transfer of the full water right itself. This is because CUAW is a measure of beneficial use, and is not merely a proxy for the legal limit of the water right according to Nevada law.

CUAW is an incomplete measure of beneficial use given that “waste” is effectively an accepted part of water rights under the Walker River decree. The decree does not limit irrigators to the diversion of the CUAW of their crops. Instead irrigators have a right to call on the full decreed rate of their water rights to meet their beneficial use. The Walker River Decree provides water right holders with maximum flow rates of water per acre of “irrigated” land. These full decreed flow rates, by priority, and at the existing point of diversion, should be the starting point for consideration of the water rights transfer.

Exhibit 196 makes no argument as to how conflict could be caused by the delivery to the proposed point of non-diversion (which is the same as the original point of diversion for irrigation use) of the full decree rights in priority. While the DST Scenario run (Exh. 116) confirms that administration of the full App. 80700 decreed water rights at the point of non-diversion can be achieved without causing shortage to other water rights on the system, common sense alone suggests that delivering water to the same point for instream use as it would have been delivered for irrigation use cannot cause conflict with existing rights. Exhibit 196 therefore fails to provide evidence that the full decreed legal limit should not be transferable to wildlife purposes at the point of non-diversion (when it is identical to the original point of diversion).

3. Exhibit 196 argues that conflict can occur if a transfer takes non-consumptive water out of a ditch system. This is not necessarily the case. The Walker River decree allows users on a shared ditch to rotate the use of their decreed water rights in order to maximize delivery efficiency along the shared ditch. But the ability to rotate and use one person’s non-consumptive water as “carry water” is purely a function of another water right holder being on the ditch and agreeing to use the water in rotation with another user. It is an opportunity presented by circumstances, but may not be an enforceable component of the property right granted under the Walker River decree. Therefore the removal of a decreed water right from a ditch would not seem to lead to “conflict” with existing rights.²

² Just as a water right holder on a shared ditch cannot force other water right holders on that ditch into rotation for efficiency purposes, it may not be possible for a water right holder on a shared ditch to force the proponent of a

4. While Exhibit 196 argues that the App. 80700 water rights should be limited for transfer to only the consumptive use component, it also identifies the historic return flows from the non-consumptive portion of West Hyland water rights, yet ignores any benefit to be accrued from them in its analysis of conflict. It concludes on page 13 that “return flow from diversions made at the West Hyland Ditch return to the Wabuska Drain and thence to the Walker River upstream of the Wabuska gage.” Therefore, Exhibit 196:
 - i. Concludes that these return flows enter the Walker River at a single point;
 - ii. Concludes that these return flows enter the Walker River approximately 12.5 miles downstream from their point of diversion at the Yerington Weir;
 - iii. Agrees with the DST analysis that all return flows from West Hyland accrue to the Wabuska Drain (and not at other points upstream);

As the mouth of the Wabuska Drain is approximately 600 feet upstream of the USGS Wabuska gage, the implication is any adjustment to the administration of App. 80700 water rights at the point of historic return flows for the previously irrigated lands to account for return flows of the non-consumptive use portion of transferred instream water rights can be measured at this gage. Exhibit 196 is thus internally inconsistent as it provides the evidence necessary to argue that any adjustment downstream due to return flows should happen at the mouth of the Wabuska Drain, but instead steadfastly argues for a reduction in the transfer amount at the point of non-diversion of the non-consumptive use portion of the full decreed water right amounts, with no benefit for the return of the non-consumptive portion downstream.

5. Exhibit 196 treats App. 80700 as if it can be conceptualized and assessed as nothing more than a simple surface water transfer application. However, as previously referenced, App. 80700 clearly proposes the transfer of surface water rights AND the retirement of associated supplemental groundwater rights. The Walker River basin and the West Hyland ditch area form a complex hydrogeologic system which is subject to myriad impacts from human use of the resource, including surface water diversions, groundwater wells, ditch leakage, on-farm losses and more. The impacts of such a transfer combined with groundwater retirement cannot be easily conceptualized and reduced to a simple single concept of CUAW, as MBK and by extension Protestant WRID urge. The Decision Support Tool (DST) developed by UNR/DRI, over the course of many years and with extensive public involvement, is an attempt to model and predict these complex interactions and therefore represents an improved approach to determine how much water can be permitted downstream from the point of non-diversion to the Wabuska Gage without conflict to other water rights, over the simple consumptive use and non-consumptive use proxy proposed by WRID.

transfer of such rights off the ditch to relinquish a significant portion of his water right for rotational purposes on the ditch – particularly when the new beneficial use of that water right is for instream/wildlife uses and not irrigation.

First, the DST is clear that the full amount of decreed water that was previously diverted at the point of diversion can be delivered to a new point of non-diversion at the same location and left instream without causing conflict to other users (Exh. 116). In order to assess any potential for conflict to other existing water rights under App. 80700, the DST provided the App. 80700 Scenario in which the water delivered under the App. 80700 rights flow downstream from the proposed point of non-diversion to the Wabuska gage, and then assessed the resulting upstream and downstream changes in water deliveries (Exh. 116). The results suggest:

- i. Over the 16-year model period, 25,344 AF of 29,500 AF (or 86%) of the water delivered to the point of non-diversion makes it to the Wabuska gage downstream of the mouth of the Wabuska Drain;
- ii. Insignificant amounts of shortage (approximately 211 AF over 16 years, or 0.7% of the total) are observed. Shortage to the Stanley Ranch diversion, i.e. combined shortage for all water rights served by that diversion, was observed only in a single year, 2000, and the total amount of the shortage was 1 to 2 AF. The only upstream diversion that was shorted was Pitchfork Ditch, i.e. combined shortages for all water rights served by that diversion, and occurred in only 3 of 16 years in the model and for a total of less than 45 AF combined. The very small and occasional nature of these shortages make them hard to evaluate as they may be an artifact of the model. They are also relatively simple to mitigate for by reducing the amount permitted for instream use (as suggested below).

In other words, administering the full decreed flow rate of the App. 80700 water rights at the point of non-diversion, and then permitting NFWF to protect 85% (i.e. 86% per the DST result less 1% as mitigation for incidental shortages identified above) of the App. 80700 rights at the Wabuska Gage when in priority is consistent with the legal requirement to avoid conflict, as determined in the DST Scenario run (Exh. 116). This outcome incorporates the benefit received to the hydrologic system from App. 80700's proposed retirement of the significant associated supplemental groundwater rights—a benefit wholly ignored by the simple CUAW transfer limitation analyzed in WRID's expert reports (Exhibits 194 and 196).

6. Exhibit 196 argues that App. 80700 would create conflict with the water rights decreed to the Walker River Paiute Tribe with an 1859 priority date. This is incorrect. As the Tribe's right is senior to all other decreed water rights, including the App. 80700 decreed rights sought for transfer, the Tribe's senior right would be in priority at the Wabuska Gage when called upon and would take precedence over any call on the more junior App. 80700 rights.
7. Exhibit 196 argues that App. 80700 would create conflict with the 1916 Stanley Ranch water right. As referenced above, Exhibit 196 acknowledges that return flows from West Hyland Ditch return to the Walker River at the mouth of the Wabuska Drain just

upstream of the Wabuska Gage. The mouth of the Wabuska Drain is located *downstream* of the permitted pump station for Stanley Ranch surface water diversions (*see* Certificate 15496). Generally speaking, a junior right between the original point of diversion and the point of return flow would not be affected by a transfer of the full diversion amount down to the point of return flow. This is because the return of the non-consumptive portion would not have been available to the intervening user. In any event, as of June 2nd 2013 NFWF acquired the Stanley Ranch and its appurtenant water rights making this argument of little consequence.

8. Exhibit 196 argues that App. 80700 would create conflict with non-decreed claimed water rights for storage of the Walker River Paiute Tribe. This is incorrect because conflict cannot occur with claims, only legal rights. Further, Exhibit 196 provides no detail as to why and how these claims would be affected.
9. Exhibit 196 argues that permitting the non-consumptive use portion of the App. 80700 water rights would create conflict with Certificate 10860 held by the Nevada Department of Wildlife for the benefit of Walker Lake because of the potential for conflict “to develop as to which water right this water would be accounted for.” As both rights are for the same ultimate beneficial use it is unclear how this could constitute conflict.
10. Exhibit 196 argues that App. 80700 would create conflict with other decreed rights upstream of Yerington Weir. As this argument is very general and conclusory, it is hard to evaluate. Exhibit 196 fails to specify which “other” rights could be subject to conflict. NFWF is clearly committed to avoiding conflicts with existing rights. The DST presents a quantitative modeling approach that demonstrates how App. 80700, if permitted for the full decreed flow rate for administration in priority at the proposed point of non-diversion with an 85% reduction at the Wabuska Gage, will avoid conflict with other existing rights, including “other” decreed rights upstream of the Yerington Weir.
11. Exhibit 196 argues that App. 80700 would create conflict with WRID’s permits to store water in Bridgeport and Topaz Reservoirs. The DST demonstrates that the same amount of water can be stored and made available for diversion in the Baseline and Scenario runs of the model (Exh. 116), while still meeting the transferred water rights under App. 80700. Thus the App. 80700 water released downstream at the Yerington Weir that reaches the Wabuska Gage in the Scenario run does not cause any conflict with storage of water in Bridgeport and Topaz Reservoirs.

Finally, in Table 5 and the accompanying text of Exhibit 196, MBK suggests applying a consumptive use fraction to each priority in order to determine a permitted diversion rate. Based on the comments above and the results of the DST, it appears that no injury is caused or any other legal conflict created by allowing the full decreed water right flow rate of the App. 80700 Rights to be administered at the proposed point of non-diversion and left instream from that point downstream. Further, at the Wabuska gage an amount equal to 85% of the full decreed flow rate may be protected without injury or conflict with other existing rights. Aligning the amounts by priority and claim yields the following table in comparison to Table 5 in Exhibit 196.

80700 Water Rights at Point of Non-Diversion				Protectable Amounts under New Permit for App. 80700			
				To point of Non-Diversion		At Wabuska Gage*	
Priority Date	Claim no.	Acres	Diversion Rate (cfs))	Rate (cfs)	Sum of Rate by Priority (cfs)	Rate (cfs)	Sum of Rate by Priority (cfs)
1874	89	33.360	0.400	0.400	0.400	0.340	0.340
1877	67	72.000	0.860	0.860	0.860	0.731	0.731
1880	23-A	86.280	1.035	1.035		0.880	
1880	44	50.000	0.600	0.600		0.510	
1880	89	9.550	0.110	0.110	1.745	0.094	1.483
1881	35	20.000	0.240	0.240	0.240	0.204	0.204
1887	23	32.500	0.390	0.390	0.390	0.332	0.332
1888	23-A	80.000	0.960	0.960	0.960	0.816	0.816
1891	89	8.930	0.110	0.110	0.110	0.094	0.094
1894	23	7.500	0.090	0.090	0.090	0.077	0.077
1896	67	91.430	1.100	1.100	1.100	0.935	0.935
1900	23-A	115.040	1.380	1.380		1.173	
1900	23	10.000	0.120	0.120	1.500	0.102	1.275
1901	44	15.000	0.180	0.180	0.180	0.153	0.153
1904	67	4.570	0.050	0.050	0.050	0.043	0.043
1906	23	10.000	0.120	0.120	0.120	0.102	0.102
Totals		646.160	7.745	7.745	7.745	6.583	6.583

Notes: * at 85% of face value amount.

C. Critique of Exhibit 196 if NFWF Were to Revise App. 80700 and Not Retire the Associated Groundwater Rights.

In App. 80700, NFWF proposes to retire the supplemental groundwater rights associated with the App. 80700 Walker decree rights. In the course of the transfer application process, the value of the groundwater rights for this purpose, as explained in Section B above, may or may not be adequately recognized or otherwise able to be realized in the change application proceeding. The benefit to both the groundwater basin and the effect on surface water flows in the Walker River identified by the DST Scenario model run from the retirement of the associated groundwater rights is precisely what is ignored by the MBK analysis in WRID Exh. 196. Therefore, if it is determined that it is not advantageous to the health of the Walker River basin or to the App. 80700 instream water rights transfer to retire these groundwater rights, and also to highlight the benefit associated with the same in order to respond to the MBK analysis, NFWF requested that the UNR/DRI DST team create a new DST model run that assumes the App. 80700 associated supplemental groundwater rights are *not* retired but instead are utilized as in the Baseline scenario (Exh. 116), that the consumptive use component is fully consumed and removed from the system, and that the non-consumptive portion follows its historic path through the system. This DST model run is provided in NFWF Exhibits 124 (report) and 125 (DST model files), and is referred to as the Addendum Scenario.

The Addendum Scenario examines the case where the groundwater rights are not retired by NFWF, and finds that conflict with other existing water rights will still be avoided under App. No. 80700, and the transfer proposed by App. 80700 may be administered similarly (to the original App. 80700 Scenario above) with respect to the full decreed amount of 7.745 at the proposed point of non-diversion. However, the difference is that at the Wabuska Gage immediately below the point of return flow for the West Hyland ditch, an adjustment in the administered amount would be necessary to account for the removal of the associated supplemental groundwater rights from the proposed set of actions under App. 80700.

The DST Addendum Scenario in Exhibit 124 suggests that 23,816 AF or 81% of the full decreed flow rate that is not diverted but instead left instream at the point of non-diversion can be administered at Wabuska without conflicting with other existing rights. System shortages of 945 AF suggest a reduction of approximately 3% to eliminate injury concerns. This leaves 78% of the full decreed flow rate that could be protected at the Wabuska Gage without injury to existing rights. In total, a reduced amount of 5.498 cfs, applied proportionately across the decreed amounts by priority date, could therefore be administered just downstream of the historic point of return flow at the Wabuska gage. This adjustment reflects a reduction of 29% of the entire 7.745 cfs sought for transfer in order to avoid conflict with other existing rights in the Walker River system. The table below compares these figures for both the NFWF Exhibit 116 scenario run and the Addendum scenario run in NFWF Exhibit 124.

Scenario	App. 80700 water (AF)	Gross Change in Wabuska Flow (AF)	Gross Change in Wabuska Flow as % of App. 80700	Total Shortage	Change in Wabuska Flow net of Shortage	Change in Wabuska Flow net of Shortage as % of App. 80700
	(AF)	(AF)	(%)	(AF)	(AF)	(%)
NFWF Exhibit 116	29,500	25,344	85.9%	211	25,133	85.2%
NFWF Exhibit 124	29,500	23,816	80.7%	945	22,871	77.5%

The table below shows what the protectable amounts at the point of non-diversion and at the Wabuska Gage would be for each claim and by each priority under a scenario in which the associated supplemental groundwater rights in App. 80700 are not retired.

80700 Water Rights at Point of Non-Diversion				Protectable Amounts under New Permit for App. 80700			
Priority Date	Claim no.	Acres	Diversion Rate (cfs)	To point of Non-Diversion		At Wabuska Gage*	
				Rate (cfs)	Sum of Rate by Priority (cfs)	Rate (cfs)	Sum of Rate by Priority (cfs)
1874	89	33.360	0.400	0.400	0.400	0.312	0.312
1877	67	72.000	0.860	0.860	0.860	0.671	0.671
1880	23-A	86.280	1.035	1.035		0.807	
1880	44	50.000	0.600	0.600		0.468	
1880	89	9.550	0.110	0.110	1.745	0.086	1.361
1881	35	20.000	0.240	0.240	0.240	0.187	0.187
1887	23	32.500	0.390	0.390	0.390	0.304	0.304
1888	23-A	80.000	0.960	0.960	0.960	0.749	0.749
1891	89	8.930	0.110	0.110	0.110	0.086	0.086
1894	23	7.500	0.090	0.090	0.090	0.070	0.070
1896	67	91.430	1.100	1.100	1.100	0.858	0.858
1900	23-A	115.040	1.380	1.380		1.076	
1900	23	10.000	0.120	0.120	1.500	0.094	1.170
1901	44	15.000	0.180	0.180	0.180	0.140	0.140
1904	67	4.570	0.050	0.050	0.050	0.039	0.039
1906	23	10.000	0.120	0.120	0.120	0.094	0.094
Totals		646.160	7.745	7.745	7.745	6.041	6.041

Note: * at 78% of Face Value

D. Additional Discussion of Exhibits 194 and 196 if the State Engineer Rules that Consumptive Use Should Limit the Instream Transfer Proposed by App. 80700

A final, alternative approach, should the State Engineer opt not to use the DST approach or its conclusions for changing App. 80700 water rights to instream/wildlife uses, would allow for delivery/administration of the full decreed flow rate (7.745 cfs) to the proposed point of non-diversion, and from there downstream and for administration of an amount not to exceed the consumptive use at or near the point of return flow for the West Hyland ditch at the Wabuska gage.

The primary question in the discussion of this alternative is to establish the appropriate consumptive use figure. In WRID Exhibit 194, calculations of consumptive use for alfalfa hay in Mason Valley are provided and compared to figures from other studies before recommending that the State Engineer use an “actual” consumptive use of 3.0 acre-feet per acre (AFA).

However, prior to MBK making its own novel determination of the consumptive use of applied water (CUAW) for Mason Valley, the net irrigation water requirement (NIWR) for alfalfa in Mason Valley was determined by the State of Nevada, Division of Water Resources (NDWR) in the publication *Evapotranspiration and Net Irrigation Water Requirements for Nevada*. This document determines the NIWR to be 3.10 AFA during an irrigation season of March 1 to October 31 (Huntington and Allen 2010: 215). The NDWR analysis is based on data over a 30-year period for two stations, one at Yerington Airport and one at the town of Wabuska, and follows the methods set forth in the NDWR report for such calculations across the state of Nevada.

As reviewed below, WRID and/or MBK fail to provide any reason why the State Engineer should deviate from the already published and accepted consumptive use figure for Mason Valley of 3.1 AFA.

A brief critique of Exhibit 194 and its arguments in favor of using something other than the NDWR published consumptive use amount is discussed below:

- A. The rationale, if any, for using the MBK figures for consumptive use in place of the NDWR figures.
 1. WRID Exhibit 194 actually calculates a higher ET for alfalfa and a higher potential net irrigation water requirement for alfalfa than does NDWR. Thus the NDWR figures are actually the more conservative figures for CUAW/NIWR.
 2. WRID Exhibit 194 does not clearly state why the MBK figures should be preferred to the NDWR figures. A particular issue with the MBK figures is the number of years of data on which they are based. Both NDWR and MBK ultimately rely on the average figure from a data time series. Averages may not be useful with short time series, particularly if there is significant variation around the mean. The Mason Valley Weather Station employed in Exhibit 194 has only three years of data. The other two stations employed in Exhibit 194 have 10 and 11 years of data, respectively. MBK fails to explain why the average for the Mason Valley Station is taken as one of three data points for averaging with the other stations that have longer time series. No criteria appear to have been applied in judging that a time series of 3 to 11 years could yield useful representatives of averages of hydrologic conditions. MBK fails to explain why it did not employ the 30-year time series that is preferred for such analyses that attempt to be representative of long-term historic conditions. The NDWR net irrigation water requirements are based on such a long 30-year time series (for two stations) and therefore provide a more robust result.
- B. The rationale, if any, for whether or not to use an “actual” rather than a “potential” consumptive use figure.
 1. The *Alpine* decree comparison in Exhibit 194 reflects an adjustment for effective precipitation. Precipitation is already considered in the potential CUAW or NIWR figures, so this evidence has nothing to do with adjusting “potential” CU to “actual” CU.

It is simply a reference point from another legal document that is specific to the legal and physical circumstances of an entirely different river basin.

2. Exhibit 194 also submits aerial photographs for wet, dry and average conditions; compares METRIC data with Exhibit 194 CUAW figures; and cites a study from California about irrigation in “non-pristine” conditions. These are all arguments about the extent of actual CUAW in a given year under a set of given conditions. How any of this relates to the legal amount available for use under the decree for irrigation or any other new use is not made clear in the exhibit.

C. Additional factual Issues with Exhibit 194 include:

1. In Figures 13 through 15 of Exhibit 194, the available water under the App. 80700 Rights is superimposed on the daily Actual CUAW chart provided by Bergfield. As CUAW does not account for losses incurred in delivering water to the crop ET function, this comparison is of little value in comparing the relative magnitudes of the shaded areas.
2. On page 39, Table 5, of Exhibit 194 the claim number for the 1900 priority with 1.38 cfs is not #35 but #23-A.

In sum, MBK’s consumptive use analysis in WRID Exhibit 194 is flawed for many reasons, and fails to provide any cogent explanation that should lead the State Engineer to ignore the 2010 NDWR published determination that the consumptive use for Mason Valley is 3.1 AFA. Accordingly, if the State Engineer determines that a consumptive use limit is appropriate, then the water rights proposed for change in App. 80700 should be approved similarly with respect to the full decreed flow rate amount of 7.745 cfs at the proposed point of non-diversion, with a reduced amount of 4.112 cfs applied proportionately across the decreed amounts by priority date in the Walker River at the mouth of the Wabuska Drain and administered just downstream at the USGS Wabuska Gage (as shown in the table below).

80700 Water Rights at Point of Non-Diversion				Protectable Amounts under New Permit for App. 80700				
				To point of Non-Diversion		At Wabuska Gage		
Priority Date	Claim no.	Acres	Diversion Rate (cfs)	Rate (cfs)	Sum of Rate by Priority (cfs)	Consumptive Use Portion Approved for	Consumptive Use Portion Flow Rate	Sum by Priority (CFS)
1874	89	33.360	0.400	0.400	0.400	103.416	0.212	0.212
1877	67	72.000	0.860	0.860	0.860	223.200	0.459	0.459
1880	23-A	86.280	1.035	1.035		267.468	0.550	
1880	44	50.000	0.600	0.600		155.000	0.318	
1880	89	9.550	0.110	0.110	1.745	29.605	0.060	0.928
1881	35	20.000	0.240	0.240	0.240	62.000	0.127	0.127
1887	23	32.500	0.390	0.390	0.390	100.750	0.207	0.207
1888	23-A	80.000	0.960	0.960	0.960	248.000	0.510	0.510
1891	89	8.930	0.110	0.110	0.110	27.683	0.056	0.056
1894	23	7.500	0.090	0.090	0.090	23.250	0.047	0.047
1896	67	91.430	1.100	1.100	1.100	283.433	0.583	0.583
1900	23-A	115.040	1.380	1.380		356.624	0.733	
1900	23	10.000	0.120	0.120	1.500	31.000	0.063	0.796
1901	44	15.000	0.180	0.180	0.180	46.500	0.095	0.095
1904	67	4.570	0.050	0.050	0.050	14.167	0.029	0.029
1906	23	10.000	0.120	0.120	0.120	31.000	0.063	0.063
Totals		646.160	7.745	7.745	7.745	2,003.096	4.112	4.112

Signed on 6/4/2013

